

APPENDIX H:

MSDS: Material Safety Data Sheets

- **Oxygen Scavenger Page 2**
- **Bactericide/Biocide Page 11**
- **Corrosion Inhibitor Page 21**



SAFETY DATA SHEET

Section 1. Identification

Product identifier : OSW5200 OXYGEN SCAVENGER
Product code : OSW5200

Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Oxygen scavenger.
Uses advised against : Not applicable.

Print date : 1/11/2017
Validation date : 1/11/2017
Version : 1

Supplier's details : Baker Hughes Canada Company
 5050 47th Street S.E.
 Calgary, Alberta, T2B 3S1, Canada
 For Product Information: 403-537-3850 or 281-276-5400
 (8:00 a.m. - 5:00 p.m. cst, Monday - Friday)

Emergency telephone number (with hours of operation) : CANUTEC 613-996-6666 (Canada 24 hours)
 Baker Petrolite 800-231-3606 (North America 24 hour)
 (001)281-276-5400
 CHEMTREC 800-424-9300 (U.S. 24 hour)
 CHEMTREC Int'l 01-703-527-3887 (International 24 hours)

Section 2. Hazard identification

Classification of the substance or mixture : CORROSIVE TO METALS - Category 1
 EYE IRRITATION - Category 2A
 RESPIRATORY SENSITIZATION - Category 1
 CARCINOGENICITY - Category 1
 TOXIC TO REPRODUCTION (Unborn child) - Category 1
 SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) (respiratory tract) - Category 2

GHS label elements

Hazard pictograms :



Signal word : Danger

Hazard statements : May be corrosive to metals.
 Causes serious eye irritation.
 May cause allergy or asthma symptoms or breathing difficulties if inhaled.
 May cause cancer.
 May damage the unborn child.
 May cause damage to organs through prolonged or repeated exposure. (respiratory tract)

Precautionary statements

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Section 2. Hazard identification

- Prevention** : Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Wear protective gloves: > 8 hours (breakthrough time): Butyl rubber gloves. Wear eye or face protection. Wear protective clothing. Wear respiratory protection. Keep only in original packaging. Do not breathe vapor. Wash hands thoroughly after handling.
- Response** : Absorb spillage to prevent material damage. Get medical attention if you feel unwell. IF exposed or concerned: Get medical attention. IF INHALED: Remove person to fresh air and keep comfortable for breathing. If experiencing respiratory symptoms: Call a POISON CENTER or physician. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical attention.
- Storage** : Store locked up. Store in a corrosion resistant container with a resistant inner liner.
- Disposal** : Dispose of contents and container in accordance with all local, regional, national and international regulations.

Section 3. Composition/information on ingredients**Substance/mixture** : Mixture

Ingredient name	% (w/w)	CAS number
Ammonium bisulfite	60 - 70	10192-30-0
Nickel sulfate	0.1 - 1	7786-81-4

Section 4. First-aid measuresDescription of necessary first aid measures

- Eye contact** : Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Continue to rinse for at least 15 minutes. Check for and remove any contact lenses. Get medical attention.
- Inhalation** : Remove victim to fresh air and keep at rest in a position comfortable for breathing. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours. In the event of any complaints or symptoms, avoid further exposure.
- Skin contact** : Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Wash contaminated clothing thoroughly with water before removing it, or wear gloves. Continue to rinse for at least 15 minutes. Get medical attention. Wash clothing before reuse. Clean shoes thoroughly before reuse.
- Ingestion** : Wash out mouth with water. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway.

Most important symptoms/effects, acute and delayedPotential acute health effects

- Eye contact** : Causes serious eye irritation.
- Inhalation** : May cause allergy or asthma symptoms or breathing difficulties if inhaled.
- Skin contact** : No known significant effects or critical hazards.
- Ingestion** : No known significant effects or critical hazards.

Over-exposure signs/symptoms

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Section 4. First-aid measures

- | | |
|---------------------|---|
| Eye contact | : pain or irritation, watering, redness |
| Inhalation | : wheezing and breathing difficulties, asthma, reduced fetal weight, increase in fetal deaths, skeletal malformations |
| Skin contact | : reduced fetal weight, increase in fetal deaths, skeletal malformations |
| Ingestion | : reduced fetal weight, increase in fetal deaths, skeletal malformations |

Indication of immediate medical attention and special treatment needed, if necessary

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|-----------------------------------|---|
| Notes to physician | : In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours. |
| Specific treatments | : No specific treatment. |
| Protection of first-aiders | : No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wash contaminated clothing thoroughly with water before removing it, or wear gloves. |

See toxicological information (Section 11)

Section 5. Fire-fighting measures**Extinguishing media**

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|---------------------------------------|---|
| Suitable extinguishing media | : Use an extinguishing agent suitable for the surrounding fire. |
| Unsuitable extinguishing media | : None known. |

Specific hazards arising from the chemical	: In a fire or if heated, a pressure increase will occur and the container may burst.
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| Hazardous thermal decomposition products | : nitrogen oxides, sulfur oxides |
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Special protective actions for fire-fighters	: Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.
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Special protective equipment for fire-fighters	: Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.
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Section 6. Accidental release measures**Personal precautions, protective equipment and emergency procedures**

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|------------------------------------|--|
| For non-emergency personnel | : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Avoid breathing vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment. |
| For emergency responders | : If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel". |

Environmental precautions	: Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).
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Section 6. Accidental release measures

Methods and materials for containment and cleaning up

- Small spill** : Stop leak if without risk. Move containers from spill area. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Absorb spillage to prevent material damage. Dispose of via a licensed waste disposal contractor.
- Large spill** : Stop leak if without risk. Move containers from spill area. Absorb spillage to prevent material damage. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations (see Section 13). Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilled product. Note: see Section 1 for emergency contact information and Section 13 for waste disposal.

Section 7. Handling and storage

Precautions for safe handling

- Protective measures** : Put on appropriate personal protective equipment (see Section 8). Persons with a history of asthma, allergies or chronic or recurrent respiratory disease should not be employed in any process in which this product is used. Avoid exposure - obtain special instructions before use. Avoid exposure during pregnancy. Do not handle until all safety precautions have been read and understood. Do not get in eyes or on skin or clothing. Do not breathe vapor or mist. Do not ingest. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Empty containers retain product residue and can be hazardous. Do not reuse container. Absorb spillage to prevent material damage.
- Advice on general occupational hygiene** : Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

- Conditions for safe storage, including any incompatibilities** : Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Store in a corrosion resistant container with a resistant inner liner. Store locked up. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination.

Section 8. Exposure controls/personal protection

Control parameters

Occupational exposure limits

Ingredient name	Exposure limits
Nickel sulfate	ACGIH TLV (United States, 3/2015). Notes: as Ni TWA: 0.1 mg/m ³ , (as Ni), 0 times per shift, 8 hours. Form: Inhalable fraction

Consult local authorities for acceptable exposure limits.

If OSHA permissible exposure levels are shown above they are the OSHA 1989 levels or are from subsequent OSHA regulatory actions. Although the 1989 levels have been vacated the 11th Circuit Court of Appeals, Baker Hughes recommends that these lower exposure levels be observed as reasonable worker protection.

Section 8. Exposure controls/personal protection

Respiratory protection : If a risk assessment indicates it is necessary, use a properly fitted, air purifying or supplied air respirator complying with an approved standard. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

Viscosity : Dynamic: 8.04 cP

OSW5200 OXYGEN SCAVENGER

Section 9. Physical and chemical properties**VOC** : Not available.**Pour Point** : -40°C (-40°F)**Section 10. Stability and reactivity****Reactivity** : No specific test data related to reactivity available for this product or its ingredients.**Chemical stability** : The product is stable.**Possibility of hazardous reactions** : Under normal conditions of storage and use, hazardous reactions will not occur.**Conditions to avoid** : No specific data.**Incompatible materials** : Reactive or incompatible with the following materials: oxidizing materials, acids and alkalis.
Avoid strong mineral acids which will yield sulfur dioxide gas. Do not use copper or its alloys**Hazardous decomposition products** : Under normal conditions of storage and use, hazardous decomposition products should not be produced.**Section 11. Toxicological information**Information on toxicological effectsAcute toxicity

No applicable toxicity data

Irritation/Corrosion

No applicable toxicity data

Sensitization

No applicable toxicity data

Mutagenicity

No applicable toxicity data

Carcinogenicity

Product/ingredient name	OSHA	IARC	NTP
Nickel sulfate	-	1	-

Reproductive toxicity

No applicable toxicity data

Teratogenicity

No applicable toxicity data

Specific target organ toxicity (single exposure)

Not applicable.

Specific target organ toxicity (repeated exposure)

Name	Category	Route of exposure	Target organs
Nickel sulfate	Category 1	Inhalation	respiratory tract

OSW5200 OXYGEN SCAVENGER

Section 11. Toxicological information

Aspiration hazard

Not available.

Information on the likely routes of exposure : Routes of entry anticipated: Dermal, Inhalation.

Delayed and immediate effects and also chronic effects from short and long term exposure

Short term exposure

Potential immediate effects : Not available.

Potential delayed effects : Not available.

Potential chronic health effects

General : May cause damage to organs through prolonged or repeated exposure. Once sensitized, a severe allergic reaction may occur when subsequently exposed to very low levels.

Carcinogenicity : May cause cancer. Risk of cancer depends on duration and level of exposure.

Mutagenicity : No known significant effects or critical hazards.

Teratogenicity : May damage the unborn child.

Developmental effects : No known significant effects or critical hazards.

Fertility effects : No known significant effects or critical hazards.

Numerical measures of toxicity

Acute toxicity estimates

Not available.

Section 12. Ecological information

Toxicity

Product/ingredient name	Result	Species	Exposure
Nickel sulfate	Acute IC50 7.28 mg/l Marine water	Algae - Phaeodactylum tricornutum - Exponential growth phase	72 hours
	Acute IC50 4.59 mg/l Marine water	Algae - Phaeodactylum tricornutum - Exponential growth phase	96 hours
	Acute LC50 125000 µg/l Marine water	Crustaceans - Crangon crangon - Adult	48 hours
	Acute LC50 180 µg/l Fresh water	Daphnia - Daphnia magna	48 hours
	Acute LC50 1280 µg/l Fresh water	Fish - Oncorhynchus mykiss - Larvae	96 hours

Persistence and degradability

Not available.





Other adverse effects : No known significant effects or critical hazards.

OSW5200 OXYGEN SCAVENGER

Section 13. Disposal considerations

Disposal methods : Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

Section 14. Transport information

	DOT Classification	TDG Classification	IMDG	IATA
UN number	UN2693	UN2693	UN2693	UN2693
UN proper shipping name	BISULFITES, AQUEOUS SOLUTION, N.O.S. (Contains: Ammonium bisulfite)	BISULFITES, AQUEOUS SOLUTION, N.O.S. (Contains: Ammonium bisulfite)	BISULPHITES, AQUEOUS SOLUTION, N.O.S. (Contains: Ammonium bisulfite)	BISULFITES, AQUEOUS SOLUTION, N.O.S. (Contains: Ammonium bisulfite)
Transport hazard class(es)	8 	8 	8 	8 
Packing group	III	III	III	III
Environmental hazards	No.	No.	No.	No.
Additional information	-	Product classified as per the following sections of the Transportation of Dangerous Goods Regulations: 2.40-2.42 (Class 8).	Emergency schedules (EmS) F-A S-B	-

Special precautions for user : **Transport within user's premises:** always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

Transport in bulk according to Annex II of MARPOL and the IBC Code : Not available.

DOT Reportable Quantity Ammonium bisulfite, 727 gal of this product.

Marine pollutant Not available.

North-America NAERG : 154

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Section 15. Regulatory informationCanadian lists**Canadian NPRI**

: The following components are listed: Ammonia (total)

CEPA Toxic substances

: The following components are listed: Oxidic, sulphidic and soluble inorganic nickel compounds

Canada inventory

: All components are listed or exempted.

Inventory list**United States**

: All components are listed or exempted.

Section 16. Other informationNational Fire Protection Association (U.S.A.)History**Date of printing**

: 1/11/2017

Notice to reader

NOTE: The information on this SDS is based on data which is considered to be accurate. Baker Hughes, however, makes no guarantees or warranty, either expressed or implied of the accuracy or completeness of this information.

The conditions or methods of handling, storage, use and disposal of the product are beyond our control and may be beyond our knowledge. For this and other reasons, we do not assume responsibility and expressly disclaim liability for loss, damage or expense arising out of or in any way connected with the handling, storage, use or disposal of this product.

This SDS was prepared and is to be used for this product. If the product is used as a component in another product, this SDS information may not be applicable.



SAFETY DATA SHEET

Section 1. Identification

Product identifier : X-CIDE™ 370 INDUSTRIAL BACTERICIDE
 ™ a trademark of Baker Hughes Incorporated.

Product code : XC370

Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Industrial Bactericide.

Uses advised against : Not applicable.

Print date : 1/18/2018

Validation date : 1/18/2018

Version : 1.01

Supplier's details : Baker Hughes Canada Company
 5050 47th Street S.E.
 Calgary, Alberta, T2B 3S1, Canada
 For Product Information: 403-537-3850 or 281-276-5400
 (8:00 a.m. - 5:00 p.m. cst, Monday - Friday)

Emergency telephone number (with hours of operation) : CANUTEC 613-996-6666 (Canada 24 hours)
 Baker Petrolite 800-231-3606 (North America 24 hour)
 (001)281-276-5400
 CHEMTREC 800-424-9300 (U.S. 24 hour)
 CHEMTREC Int'l 01-703-527-3887 (International 24 hours)

Section 2. Hazard identification

Classification of the substance or mixture : FLAMMABLE LIQUIDS - Category 3
 ACUTE TOXICITY (oral) - Category 4
 ACUTE TOXICITY (inhalation) - Category 2
 SKIN IRRITATION - Category 2
 SERIOUS EYE DAMAGE - Category 1
 SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (optic nerve) - Category 1
 AQUATIC HAZARD (ACUTE) - Category 1
 Health Hazards Not Otherwise Classified - Category 1

GHS label elements

Hazard pictograms



Signal word

: Danger

Hazard statements

: Flammable liquid and vapor.
 Fatal if inhaled.
 Harmful if swallowed.
 Causes serious eye damage.
 Causes skin irritation.
 Prolonged or repeated contact may dry skin and cause irritation.
 Causes damage to organs. (optic nerve)

X-CIDE™ 370 INDUSTRIAL BACTERICIDE

Section 2. Hazard identification

Very toxic to aquatic life.

Precautionary statements**Prevention**

- : Wear protective gloves: > 8 hours (breakthrough time): Nitrile or Neoprene gloves. 4H gloves. Wear protective clothing. Wear eye or face protection. Wear respiratory protection. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Use only outdoors or in a well-ventilated area. Avoid release to the environment. Do not breathe vapor. Do not eat, drink or smoke when using this product. Wash hands thoroughly after handling.

Response

- : Collect spillage. IF exposed or concerned: Call a POISON CENTER or physician. IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER or physician. IF SWALLOWED: Call a POISON CENTER or physician if you feel unwell. Rinse mouth. IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water. IF ON SKIN: Wash with plenty of soap and water. Take off contaminated clothing and wash it before reuse. If skin irritation occurs: Get medical attention. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER or physician.

Storage

- : Store locked up.

Disposal

- : Dispose of contents and container in accordance with all local, regional, national and international regulations.

Supplemental label elements

- : Avoid contact with skin and clothing. Wash thoroughly after handling.

Section 3. Composition/information on ingredients**Substance/mixture** : Mixture

Ingredient name	% (w/w)	CAS number
Oxydiethylene bis(alkyl* dimethyl ammonium chloride)	30 - 40	68607-28-3
Methanol	20 - 30	67-56-1

Section 4. First-aid measures**Description of necessary first aid measures****Eye contact**

- : Get medical attention immediately. Call a poison center or physician. Immediately flush the eye(s) continuously with lukewarm, gently flowing water for at least 20-60 minutes while holding the eyelid(s) open. Check for and remove any contact lenses. Chemical burns must be treated promptly by a physician.

Inhalation

- : Remove victim to fresh air and keep at rest in a position comfortable for breathing. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.

Skin contact

- : Wash skin thoroughly with soap and water or use recognized skin cleanser. Remove contaminated clothing and shoes. Continue to rinse for at least 15 minutes. Get medical attention. Wash clothing before reuse. Clean shoes thoroughly before reuse.

Ingestion

- : Wash out mouth with water. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway.

X-CIDE™ 370 INDUSTRIAL BACTERICIDE

Section 4. First-aid measures**Most important symptoms/effects, acute and delayed****Potential acute health effects**

- Eye contact** : Causes serious eye damage.
- Inhalation** : Fatal if inhaled.
- Skin contact** : Causes skin irritation. Defatting to the skin.
- Ingestion** : Harmful if swallowed.

Over-exposure signs/symptoms

- Eye contact** : pain, watering, redness
- Inhalation** : No specific data.
- Skin contact** : pain or irritation, redness, dryness, cracking, blistering may occur
- Ingestion** : stomach pains

Indication of immediate medical attention and special treatment needed, if necessary

- Notes to physician** : In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.
- Specific treatments** : No specific treatment.
- Protection of first-aiders** : No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wash contaminated clothing thoroughly with water before removing it, or wear gloves.

See toxicological information (Section 11)

Section 5. Fire-fighting measures**Extinguishing media**

- Suitable extinguishing media** : Use dry chemical, CO₂, water spray (fog) or foam.
- Unsuitable extinguishing media** : Do not use water jet.

- Specific hazards arising from the chemical** : Flammable liquid and vapor. Runoff to sewer may create fire or explosion hazard. In a fire or if heated, a pressure increase will occur and the container may burst, with the risk of a subsequent explosion. The vapor/gas is heavier than air and will spread along the ground. Vapors may accumulate in low or confined areas or travel a considerable distance to a source of ignition and flash back. This material is very toxic to aquatic life. Fire water contaminated with this material must be contained and prevented from being discharged to any waterway, sewer or drain.

- Hazardous thermal decomposition products** : carbon dioxide, carbon monoxide, nitrogen oxides, halogenated compounds

- Special protective actions for fire-fighters** : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool.

- Special protective equipment for fire-fighters** : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

X-CIDE™ 370 INDUSTRIAL BACTERICIDE

Section 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

- For non-emergency personnel** : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Shut off all ignition sources. No flares, smoking or flames in hazard area. Do not breathe vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.
- For emergency responders** : If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

- Environmental precautions** : Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air). Water polluting material. May be harmful to the environment if released in large quantities. Collect spillage.

Methods and materials for containment and cleaning up

- Small spill** : Stop leak if without risk. Move containers from spill area. Use spark-proof tools and explosion-proof equipment. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.
- Large spill** : Stop leak if without risk. Move containers from spill area. Use spark-proof tools and explosion-proof equipment. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations (see Section 13). Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilled product. Note: see Section 1 for emergency contact information and Section 13 for waste disposal.

Section 7. Handling and storage

Precautions for safe handling

- Protective measures** : Put on appropriate personal protective equipment (see Section 8). Do not get in eyes or on skin or clothing. Do not breathe vapor or mist. Do not ingest. Avoid release to the environment. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Do not enter storage areas and confined spaces unless adequately ventilated. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Store and use away from heat, sparks, open flame or any other ignition source. Use explosion-proof electrical (ventilating, lighting and material handling) equipment. Use only non-sparking tools. Take precautionary measures against electrostatic discharges. Empty containers retain product residue and can be hazardous. Do not reuse container.
- Advice on general occupational hygiene** : Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

X-CIDE™ 370 INDUSTRIAL BACTERICIDE

Section 7. Handling and storage

Conditions for safe storage, including any incompatibilities : Store in accordance with local regulations. Store in a segregated and approved area. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Store locked up. Eliminate all ignition sources. Separate from oxidizing materials. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination. See Section 10 for incompatible materials before handling or use.

Section 8. Exposure controls/personal protection

Control parameters

Occupational exposure limits

Ingredient name	Exposure limits
Methanol	ACGIH TLV (United States, 3/2017). Absorbed through skin. STEL: 328 mg/m ³ , 0 times per shift, 15 minutes. STEL: 250 ppm, 0 times per shift, 15 minutes. TWA: 262 mg/m ³ , 0 times per shift, 8 hours. TWA: 200 ppm, 0 times per shift, 8 hours.

Consult local authorities for acceptable exposure limits.

If OSHA permissible exposure levels are shown above they are the OSHA 1989 levels or are from subsequent OSHA regulatory actions. Although the 1989 levels have been vacated the 11th Circuit Court of Appeals, Baker Hughes recommends that these lower exposure levels be observed as reasonable worker protection.

Appropriate engineering controls : Use only with adequate ventilation. Use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits. The engineering controls also need to keep gas, vapor or dust concentrations below any lower explosive limits. Use explosion-proof ventilation equipment.

Individual protection measures

Hygiene measures : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing.

Eye/face protection : Wear chemical safety goggles. When transferring material wear face-shield in addition to chemical safety goggles. If inhalation hazards exist, a full-face respirator may be required instead.

Hand protection : Chemical-resistant gloves: Nitrile or Neoprene gloves. 4H gloves.

Skin protection : Wear long sleeves and chemical resistant apron to prevent repeated or prolonged skin contact.

Respiratory protection : If a risk assessment indicates it is necessary, use a properly fitted supplied air respirator complying with an approved standard. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

X-CIDE™ 370 INDUSTRIAL BACTERICIDE

Section 9. Physical and chemical properties

Appearance

Physical state	: Liquid.
Color	: Yellow.
Odor	: Alcohol-like.
Odor threshold	: Not available.
pH	: 5 to 7 [Conc. (% w/w): 1%] : 5% in water
Melting/freezing point	: -34.4°C (-29.9°F)
Boiling point	: 65.6°C (150.1°F)
Initial Boiling Point	: Not available.
Flash point	: Closed cup: 26.7°C (80.1°F) [SFCC]
Burning time	: Not applicable.
Burning rate	: Not applicable.
Evaporation rate	: Not available.
Flammability (solid, gas)	: Highly flammable in the presence of the following materials or conditions: open flames, sparks and static discharge and heat.
Lower and upper explosive (flammable) limits	: Not available.
Vapor pressure	: 52.4 kPa (393 mm Hg (7.6 psig)) @ 54.44°C (130 F) (Reid)
Vapor density	: >1 [Air = 1]
Relative density	: 0.936 (15.6°C)
Density	: 7.8 (lbs/gal)
Solubility in water	: Soluble
Partition coefficient: n-octanol/water	: Not available.
Auto-ignition temperature	: Not available.
Decomposition temperature	: Not available.
Viscosity	: Dynamic (37.8°C): 12 cP
VOC	: Not available.
Pour Point	: -10°C (14°F)

Section 10. Stability and reactivity

Reactivity	: No specific test data related to reactivity available for this product or its ingredients.
Chemical stability	: The product is stable.
Possibility of hazardous reactions	: Under normal conditions of storage and use, hazardous reactions will not occur.
Conditions to avoid	: Avoid all possible sources of ignition (spark or flame). Do not pressurize, cut, weld, braze, solder, drill, grind or expose containers to heat or sources of ignition. Do not allow vapor to accumulate in low or confined areas.

X-CIDE™ 370 INDUSTRIAL BACTERICIDE

Section 10. Stability and reactivity

Incompatible materials : Reactive or incompatible with the following materials: oxidizing materials and reducing materials.
Methanol is incompatible and may react with acetyl bromide, alkyl aluminum solutions, beryllium hydride, boron trichloride, nitric acid, cyanuric chloride, dichloromethane, diethylzinc, metals (granulated forms of aluminum and magnesium – including aluminum and zinc salts), phosphorus III oxide, and potassium tert-butoxide.

Hazardous decomposition products : Under normal conditions of storage and use, hazardous decomposition products should not be produced.

Section 11. Toxicological information**Information on toxicological effects****Acute toxicity**

Product/ingredient name	Result	Species	Dose	Exposure
X-CIDE™ 370 INDUSTRIAL BACTERICIDE	Methanol			
	LC50 Inhalation Gas.	Rat	145000 ppm	1 hours
	LC50 Inhalation Gas.	Rat	64000 ppm	4 hours
	LD50 Dermal	Rabbit	15800 mg/kg	-
	LD50 Oral	Rat	5600 mg/kg	-
	LC50 Inhalation Vapor	Rat	1.05 mg/l	4 hours
	LD50 Dermal	Rabbit	9700 mg/kg	-
	LD50 Oral	Rat	1700 mg/kg	-

Irritation/Corrosion

No applicable toxicity data

Sensitization

No applicable toxicity data

Mutagenicity

No applicable toxicity data

Carcinogenicity

No applicable toxicity data

Reproductive toxicity

No applicable toxicity data

Teratogenicity

No applicable toxicity data

Specific target organ toxicity (single exposure)

Name	Category	Route of exposure	Target organs
Methanol	Category 1	Oral	optic nerve

Specific target organ toxicity (repeated exposure)

Not applicable.

Aspiration hazard

Not available.

Information on the likely routes of exposure : Routes of entry anticipated: Dermal, Inhalation.

X-CIDE™ 370 INDUSTRIAL BACTERICIDE

Section 11. Toxicological information

Delayed and immediate effects and also chronic effects from short and long term exposure

Short term exposure

Potential immediate effects : Not available.

Potential delayed effects : Not available.

Potential chronic health effects

General : Prolonged or repeated contact can defat the skin and lead to irritation, cracking and/or dermatitis.

Carcinogenicity : No known significant effects or critical hazards.

Mutagenicity : No known significant effects or critical hazards.

Teratogenicity : No known significant effects or critical hazards.

Developmental effects : No known significant effects or critical hazards.

Fertility effects : No known significant effects or critical hazards.

Numerical measures of toxicity

Acute toxicity estimates

Not available.

Section 12. Ecological information

Toxicity

Product/ingredient name	Result	Species	Exposure
Methanol	Acute EC50 16.912 mg/l Marine water	Algae - Ulva pertusa	96 hours
	Acute EC50 10000000 µg/l Fresh water	Daphnia - Daphnia magna	48 hours
	Acute LC50 2500000 µg/l Marine water	Crustaceans - Crangon crangon	48 hours
	Acute LC50 100 mg/l Fresh water	Fish - Pimephales promelas	96 hours
	Chronic NOEC 9.96 mg/l Marine water	Algae - Ulva pertusa	96 hours
	Acute EC50 1.7 mg/l	Daphnia	96 hours
	Acute LC50 34 mg/l	Daphnia	96 hours
	Acute LC50 4 mg/l	Daphnia	96 hours
	Acute LC50 0.42 mg/l	Fish	96 hours
	Acute LC50 0.6 mg/l	Fish	96 hours
	Acute LC50 0.55 mg/l	Fish	96 hours
X-CIDE™ 370 INDUSTRIAL BACTERICIDE			

Persistence and degradability

Not available.













Other adverse effects : No known significant effects or critical hazards.

X-CIDE™ 370 INDUSTRIAL BACTERICIDE

Section 13. Disposal considerations

Disposal methods : Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Vapor from product residues may create a highly flammable or explosive atmosphere inside the container. Do not cut, weld or grind used containers unless they have been cleaned thoroughly internally. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

Section 14. Transport information

	DOT Classification	TDG Classification	IMDG	IATA
UN number	UN1992	UN1992	UN1992	UN1992
UN proper shipping name	FLAMMABLE LIQUID, TOXIC, N.O.S. (Contains: Methanol, Oxydiethylene bis (alkyl* dimethyl ammonium chloride))	FLAMMABLE LIQUID, TOXIC, N.O.S. (Contains: Methanol, Oxydiethylene bis (alkyl* dimethyl ammonium chloride))	FLAMMABLE LIQUID, TOXIC, N.O.S. (Contains: Methanol, Oxydiethylene bis (alkyl* dimethyl ammonium chloride))	FLAMMABLE LIQUID, TOXIC, N.O.S. (Contains: Methanol, Oxydiethylene bis (alkyl* dimethyl ammonium chloride))
Transport hazard class(es)	3 (6.1)   	3 (6.1)   	3 (6.1)   	3 (6.1)   
Packing group	III	III	III	III
Environmental hazards	Yes.	Yes.	Yes.	Yes. The environmentally hazardous substance mark is not required.

Additional information

TDG Classification

: Product classified as per the following sections of the Transportation of Dangerous Goods Regulations: 2.18-2.19 (Class 3), 2.26-2.36 (Class 6), 2.7 (Marine pollutant mark).
The marine pollutant mark is not required when transported by road or rail.

DOT Classification

: This product is not regulated as a marine pollutant when transported on inland waterways in sizes of ≤5 L or ≤5 kg or by road, rail, or inland air in non-bulk sizes, provided the packagings meet the general provisions of §§ 173.24 and 173.24a.
Reportable quantity 16937.7 lbs / 7689.7 kg [2170.3 gal / 8215.5 L]. Package sizes shipped in quantities less than the product reportable quantity are not subject to the RQ (reportable quantity) transportation requirements.

IMDG

: The marine pollutant mark is not required when transported in sizes of ≤5 L or ≤5 kg.
Emergency schedules F-E S-D

IATA

: The environmentally hazardous substance mark may appear if required by other transportation regulations.

Special precautions for user : **Transport within user's premises:** always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

X-CIDE™ 370 INDUSTRIAL BACTERICIDE

Section 14. Transport information

Transport in bulk according to Annex II of MARPOL and the IBC Code : Not available.

DOT Reportable Quantity : Methanol, 2171 gal of this product.

Marine pollutant : Oxydiethylene bis(alkyl* dimethyl ammonium chloride)

North-America NAERG : 131

Section 15. Regulatory information

Canadian lists

Canadian NPRI : The following components are listed: Methanol

CEPA Toxic substances : None of the components are listed.

Canada (CEPA DSL): : All components are listed or exempted.

Inventory list

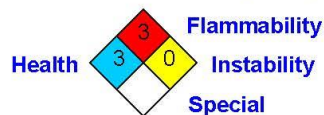
United States : All components are listed or exempted.

Additional information

In Canada, this product is subject to regulation under the Pest Control Products Act (PCPA) and is therefore exempt from Environment Canada's Domestic Substance List (DSL) Inventory requirements. Pest Control Products Act Registration No. 23113

Section 16. Other information

National Fire Protection Association (U.S.A.)



History

Date of printing : 1/18/2018

Notice to reader

NOTE: The information on this SDS is based on data which is considered to be accurate. Baker Hughes, however, makes no guarantees or warranty, either expressed or implied of the accuracy or completeness of this information.

The conditions or methods of handling, storage, use and disposal of the product are beyond our control and may be beyond our knowledge. For this and other reasons, we do not assume responsibility and expressly disclaim liability for loss, damage or expense arising out of or in any way connected with the handling, storage, use or disposal of this product.

This SDS was prepared and is to be used for this product. If the product is used as a component in another product, this SDS information may not be applicable.



SAFETY DATA SHEET

Section 1. Identification

Product name : CRW132 CORROSION INHIBITOR
Product code : CRW132

Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Corrosion Inhibitor.

Print date : 11/19/2018

Validation date : 11/19/2018

Version : 3

Supplier's details : Baker Petrolite LLC
12645 W. Airport Blvd.
Sugar Land, TX 77478
For Product Information/SDSs Call: 800-231-3606
(8:00 a.m. - 5:00 p.m. CST, Monday - Friday) 281-276-5400

Emergency telephone number (with hours of operation) : CHEMTREC: 800-424-9300 (U.S. 24 hour)
Baker Petrolite: 800-231-3606
(001)281-276-5400
CHEMTREC Int'l 01-703-527-3887 (International 24 hour)

Section 2. Hazards identification

OSHA/HCS status : This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

Classification of the substance or mixture : FLAMMABLE LIQUIDS - Category 3
ACUTE TOXICITY (oral) - Category 4
ACUTE TOXICITY (dermal) - Category 4
ACUTE TOXICITY (inhalation) - Category 4
SKIN IRRITATION - Category 2
SERIOUS EYE DAMAGE - Category 1
SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (optic nerve) - Category 1
AQUATIC HAZARD (ACUTE) - Category 2

GHS label elements

Hazard pictograms :



Signal word : Danger

Hazard statements : Flammable liquid and vapor.
Harmful if swallowed, in contact with skin or if inhaled.
Causes serious eye damage.
Causes skin irritation.
Causes damage to organs. (optic nerve)
Toxic to aquatic life.

Precautionary statements

CRW132 CORROSION INHIBITOR

Section 2. Hazards identification

Prevention	: Wear protective gloves: > 8 hours (breakthrough time): Nitrile or Neoprene gloves. 4H gloves. Wear eye or face protection. Wear protective clothing. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Use explosion-proof electrical, ventilating, lighting and all material-handling equipment. Use only non-sparking tools. Take precautionary measures against static discharge. Keep container tightly closed. Use only outdoors or in a well-ventilated area. Avoid release to the environment. Do not breathe vapor. Do not eat, drink or smoke when using this product. Wash hands thoroughly after handling.
Response	: IF exposed: Call a POISON CENTER or physician. IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER or physician if you feel unwell. IF SWALLOWED: Call a POISON CENTER or physician if you feel unwell. Rinse mouth. IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower. IF ON SKIN: Wash with plenty of soap and water. Call a POISON CENTER or physician if you feel unwell. Take off contaminated clothing and wash it before reuse. If skin irritation occurs: Get medical attention. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER or physician.
Storage	: Store locked up. Store in a well-ventilated place. Keep cool.
Disposal	: Dispose of contents and container in accordance with all local, regional, national and international regulations.
Supplemental label elements	: Avoid contact with skin and clothing. Wash thoroughly after handling.
Hazards not otherwise classified	: Prolonged or repeated contact may dry skin and cause irritation.

Section 3. Composition/information on ingredients**Substance/mixture** : Mixture

Ingredient name	%	CAS number
Methanol	20 - 30	67-56-1
Quaternary ammonium compounds	5 - 10	Trade secret.
Alkylpyridine salts	5 - 10	Trade secret.
Ammonium bisulfite	1 - 5	10192-30-0

Section 4. First aid measures**Description of necessary first aid measures**

Eye contact	: Get medical attention immediately. Call a poison center or physician. Immediately flush the eye(s) continuously with lukewarm, gently flowing water for at least 20-60 minutes while holding the eyelid(s) open. Check for and remove any contact lenses. Chemical burns must be treated promptly by a physician.
Inhalation	: Remove victim to fresh air and keep at rest in a position comfortable for breathing. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.
Skin contact	: Get medical attention immediately. Call a poison center or physician. Wash affected area with soap and mild detergent for at least 20 - 60 minutes. Wash skin thoroughly with soap and water or use recognized skin cleanser. Remove contaminated clothing and shoes. Wash contaminated clothing thoroughly with water before removing it, or wear gloves. Chemical burns must be treated promptly by a physician. Wash clothing before reuse. Clean shoes thoroughly before reuse.

CRW132 CORROSION INHIBITOR

Section 4. First aid measures

Ingestion : Wash out mouth with water. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway.

Most important symptoms/effects, acute and delayed**Potential acute health effects**

Eye contact : Causes serious eye damage.
Inhalation : Harmful if inhaled.
Skin contact : Harmful in contact with skin. Causes skin irritation. Defatting to the skin.
Ingestion : Harmful if swallowed.

Over-exposure signs/symptoms

Eye contact : pain, watering, redness
Inhalation : No specific data.
Skin contact : pain or irritation, redness, dryness, cracking, blistering may occur
Ingestion : stomach pains

Indication of immediate medical attention and special treatment needed, if necessary

Notes to physician : In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.
Specific treatments : No specific treatment.
Protection of first-aiders : No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wash contaminated clothing thoroughly with water before removing it, or wear gloves.

See toxicological information (Section 11)

Section 5. Fire-fighting measures**Extinguishing media**

Suitable extinguishing media : Use dry chemical, CO₂, water spray (fog) or foam.
Unsuitable extinguishing media : Do not use water jet.

Specific hazards arising from the chemical : Flammable liquid and vapor. Runoff to sewer may create fire or explosion hazard. In a fire or if heated, a pressure increase will occur and the container may burst, with the risk of a subsequent explosion. The vapor/gas is heavier than air and will spread along the ground. Vapors may accumulate in low or confined areas or travel a considerable distance to a source of ignition and flash back. This material is toxic to aquatic life. Fire water contaminated with this material must be contained and prevented from being discharged to any waterway, sewer or drain.

Hazardous thermal decomposition products : carbon dioxide, carbon monoxide, nitrogen oxides, sulfur oxides, halogenated compounds

CRW132 CORROSION INHIBITOR

Section 5. Fire-fighting measures

- Special protective actions for fire-fighters** : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool.
- Special protective equipment for fire-fighters** : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

Section 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

- For non-emergency personnel** : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Shut off all ignition sources. No flares, smoking or flames in hazard area. Do not breathe vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.
- For emergency responders** : If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".
- Environmental precautions** : Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air). Water polluting material. May be harmful to the environment if released in large quantities.

Methods and materials for containment and cleaning up

- Small spill** : Stop leak if without risk. Move containers from spill area. Use spark-proof tools and explosion-proof equipment. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.
- Large spill** : Stop leak if without risk. Move containers from spill area. Use spark-proof tools and explosion-proof equipment. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations (see Section 13). Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilled product. Note: see Section 1 for emergency contact information and Section 13 for waste disposal.

If RQ (Reportable Quantity) is exceeded, report to National Spill Response Office at 1-800-424-8802.

Section 7. Handling and storage

Precautions for safe handling

- Protective measures** : Put on appropriate personal protective equipment (see Section 8). Do not get in eyes or on skin or clothing. Do not breathe vapor or mist. Do not ingest. Avoid release to the environment. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Do not enter storage areas and confined spaces unless adequately ventilated. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Store and use away from heat, sparks, open flame or any other ignition source. Use explosion-proof electrical (ventilating, lighting and material handling) equipment. Use only non-sparking tools. Take precautionary measures against electrostatic discharges. Empty containers retain product residue and can be hazardous. Do not reuse container.

CRW132 CORROSION INHIBITOR

Section 8. Exposure controls/personal protection

Individual protection measures

- | | |
|-------------------------------|---|
| Hygiene measures | : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. |
| Eye/face protection | : Wear chemical safety goggles. When transferring material wear face-shield in addition to chemical safety goggles. If inhalation hazards exist, a full-face respirator may be required instead. |
| Hand protection | : Chemical-resistant gloves: Nitrile or Neoprene gloves. 4H gloves. |
| Skin protection | : Wear long sleeves and chemical resistant apron to prevent repeated or prolonged skin contact. |
| Respiratory protection | : If a risk assessment indicates it is necessary, use a properly fitted supplied air respirator complying with an approved standard. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator. |

Section 9. Physical and chemical properties

Appearance

- | | |
|---|---|
| Physical state | : Liquid. |
| Color | : Amber. [Dark] |
| Odor | : Pungent. Amine-like. |
| Odor threshold | : Not available. |
| pH | : 4 to 5 |
| Melting/freezing point | : Neat - without dilution. |
| Boiling point | : Not available. |
| Initial Boiling Point | : Not available. |
| Flash point | : Closed cup: 31.1°C (88°F) [PMCC] |
| Burning time | : Not applicable. |
| Burning rate | : Not applicable. |
| Evaporation rate | : Not available. |
| Flammability (solid, gas) | : Highly flammable in the presence of the following materials or conditions: open flames, sparks and static discharge and heat. |
| Lower and upper explosive (flammable) limits | : Not available. |
| Vapor pressure | : 45.5 kPa (341.3 mm Hg, 6.6 psig) @ 54.4°C, 130 F (Reid) |
| Vapor density | : >1 [Air = 1] |
| Relative density | : 0.97 (15.6°C) |
| Density | : 8.08 (lbs/gal) |
| Solubility in water | : Soluble |
| Partition coefficient: n-octanol/water | : Not available. |
| Auto-ignition temperature | : Not available. |
| Decomposition temperature | : Not available. |
| Viscosity | : Dynamic (15.6°C): 8 cP |
| VOC | : Not available. |
| Pour Point | : -40°C (-40°F) |

CRW132 CORROSION INHIBITOR

Section 10. Stability and reactivity

- Reactivity** : No specific test data related to reactivity available for this product or its ingredients.
- Chemical stability** : The product is stable.
- Possibility of hazardous reactions** : Under normal conditions of storage and use, hazardous reactions will not occur.
- Conditions to avoid** : Avoid all possible sources of ignition (spark or flame). Do not pressurize, cut, weld, braze, solder, drill, grind or expose containers to heat or sources of ignition. Do not allow vapor to accumulate in low or confined areas.
- Incompatible materials** : Reactive or incompatible with the following materials: oxidizing materials and reducing materials.
Methanol is incompatible and may react with acetyl bromide, alkyl aluminum solutions, beryllium hydride, boron trichloride, nitric acid, cyanuric chloride, dichloromethane, diethylzinc, metals (granulated forms of aluminum and magnesium – including aluminum and zinc salts), phosphorus III oxide, and potassium tert-butoxide.
- Hazardous decomposition products** : Under normal conditions of storage and use, hazardous decomposition products should not be produced.

Section 11. Toxicological information**Information on toxicological effects****Acute toxicity**

Product/ingredient name	Result	Species	Dose	Exposure
Methanol	LC50 Inhalation Gas.	Rat	145000 ppm	1 hours
	LC50 Inhalation Gas.	Rat	64000 ppm	4 hours
	LD50 Dermal	Rabbit	15800 mg/kg	-
	LD50 Oral	Rat	5600 mg/kg	-

Irritation/Corrosion

No applicable toxicity data

Sensitization

No applicable toxicity data

Mutagenicity

No applicable toxicity data

Carcinogenicity

No applicable toxicity data

Reproductive toxicity

No applicable toxicity data

Teratogenicity

No applicable toxicity data

Specific target organ toxicity (single exposure)

Name	Category	Route of exposure	Target organs
Methanol	Category 1	Oral	optic nerve

CRW132 CORROSION INHIBITOR

Section 11. Toxicological information**Specific target organ toxicity (repeated exposure)**

Not applicable.

Aspiration hazard

Not available.

Information on the likely routes of exposure : Routes of entry anticipated: Dermal, Inhalation.

Potential acute health effects

Eye contact : Causes serious eye damage.
Inhalation : Harmful if inhaled.
Skin contact : Harmful in contact with skin. Causes skin irritation. Defatting to the skin.
Ingestion : Harmful if swallowed.

Potential chronic health effects

General : Prolonged or repeated contact can defat the skin and lead to irritation, cracking and/or dermatitis.
Carcinogenicity : No known significant effects or critical hazards.
Mutagenicity : No known significant effects or critical hazards.
Teratogenicity : No known significant effects or critical hazards.
Developmental effects : No known significant effects or critical hazards.
Fertility effects : No known significant effects or critical hazards.

Numerical measures of toxicity**Acute toxicity estimates**

Route	ATE value
Oral	321.6 mg/kg
Dermal	1003.3 mg/kg
Inhalation (vapors)	10.03 mg/l

Section 12. Ecological information**Toxicity**

Product/ingredient name	Result	Species	Exposure
CRW132 CORROSION INHIBITOR	Methanol	Algae - Ulva pertusa	96 hours
	Acute EC50 16.912 mg/l Marine water	Daphnia - Daphnia magna	48 hours
	Acute EC50 10000000 µg/l Fresh water	Crustaceans - Crangon crangon	48 hours
	Acute LC50 2500000 µg/l Marine water	Fish - Pimephales promelas	96 hours
	Acute LC50 100 mg/l Fresh water	Algae - Ulva pertusa	96 hours
	Chronic NOEC 9.96 mg/l Marine water	Daphnia	48 hours
	Acute LC50 2.61 mg/l		
	Acute LC50 3 ppm	Daphnia	48 hours
	Acute LC50 2.3 mg/l	Fish - Fathead minnow	96 hours
	Acute LC50 2.3 mg/l	Fish - Sheepshead minnow	96 hours

Persistence and degradability









Not available.

CRW132 CORROSION INHIBITOR

Section 12. Ecological information**Other adverse effects** : No known significant effects or critical hazards.**Section 13. Disposal considerations**

Disposal methods : Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Vapor from product residues may create a highly flammable or explosive atmosphere inside the container. Do not cut, weld or grind used containers unless they have been cleaned thoroughly internally. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

Section 14. Transport information

	DOT Classification	TDG Classification	IMDG	IATA
UN number	UN1992	UN1992	UN1992	UN1992
UN proper shipping name	FLAMMABLE LIQUID, TOXIC, N.O.S. (Contains: Methanol)	FLAMMABLE LIQUID, TOXIC, N.O.S. (Contains: Methanol)	FLAMMABLE LIQUID, TOXIC, N.O.S. (Contains: Methanol)	FLAMMABLE LIQUID, TOXIC, N.O.S. (Contains: Methanol)
Transport hazard class(es)	3 (6.1)  	3 (6.1)  	3 (6.1)  	3 (6.1)  
Packing group	III	III	III	III
Environmental hazards	No.	No.	No.	No.

Additional information

DOT Classification : **Reportable quantity** 16722.2 lbs / 7591.9 kg [2067.6 gal / 7826.7 L]. Package sizes shipped in quantities less than the product reportable quantity are not subject to the RQ (reportable quantity) transportation requirements.

TDG Classification : Product classified as per the following sections of the Transportation of Dangerous Goods Regulations: 2.18-2.19 (Class 3), 2.26-2.36 (Class 6).

IMDG : **Emergency schedules** F-E S-D

Special precautions for user : **Transport within user's premises:** always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

Transport in bulk according to Annex II of MARPOL and the IBC Code : Not available.

DOT Reportable Quantity Methanol, 2070 gal of this product.
Ammonium bisulfite, 24752 gal of this product.

Marine pollutant Not available.

CRW132 CORROSION INHIBITOR

Section 14. Transport information

North-America NAERG : 131

Section 15. Regulatory information

U.S. Federal regulations : TSCA 12(b) one-time export: No products were found.
 TSCA 12(b) annual export notification: No products were found.
 United States inventory (TSCA 8b): All components are listed or exempted.
 Clean Water Act (CWA) 307: No products were found.
 Clean Water Act (CWA) 311: ammonium hydrogensulphite

United States - Clean Air Act Section 112(b) Hazardous Air Pollutants (HAPs) :

List name	Status	Ingredient name	Name on list	Conc.
United States - Clean Air Act Section 112(b) Hazardous Air Pollutants (HAPs)	Listed	Methanol	Methanol	20 - 30

SARA 302/304 : No products were found.

SARA 311/312

Classification : Fire hazard
 Immediate (acute) health hazard

SARA 313

	Product name	CAS number	%
Supplier notification	Methanol	67-56-1	20 - 30
	Ammonium bisulfite	10192-30-0	1 - 5

California Prop. 65

⚠ WARNING: This product can expose you to methanol, which is known to the State of California to cause birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.

Canada

Canada (CEPA DSL): : All components are listed or exempted.

Section 16. Other information**National Fire Protection Association (U.S.A.)****History**

Date of printing : 11/19/2018

Notice to reader

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